



(12) **United States Patent**
Shinagawa

(10) **Patent No.:** **US 9,411,290 B2**
(45) **Date of Patent:** **Aug. 9, 2016**

(54) **IMAGE FORMING APPARATUS
CONFIGURED TO SET AN INITIAL VALUE
OF AN AMOUNT OF RECORDING
MATERIAL REMAINING IN A CONTAINING
UNIT, ASSOCIATED CONTROL METHOD,
AND STORAGE MEDIUM**

G03G 21/1885; G03G 21/1889; G03G
21/1892; G03G 21/1896
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

(71) Applicant: **CANON KABUSHIKI KAISHA,**
Tokyo (JP)

6,587,649	B1 *	7/2003	Yamamoto et al.	399/27
6,591,070	B1 *	7/2003	Shoji et al.	399/27
2004/0070642	A1 *	4/2004	Murakami et al.	347/19
2005/0163514	A1 *	7/2005	Hwang	399/8
2010/0172659	A1 *	7/2010	Jeon	G03G 15/553 399/12
2010/0232816	A1 *	9/2010	Tan et al.	399/27

(72) Inventor: **Kazutaka Shinagawa,** Yokohama (JP)

(73) Assignee: **Canon Kabushiki Kaisha,** Tokyo (JP)

(*) Notice: Subject to any disclaimer, the term of this
patent is extended or adjusted under 35
U.S.C. 154(b) by 0 days.

FOREIGN PATENT DOCUMENTS

JP 2006-343621 A 12/2006

* cited by examiner

Primary Examiner — Clayton E Laballe

Assistant Examiner — Trevor J Bervik

(74) *Attorney, Agent, or Firm* — Canon USA Inc. IP
Division

(21) Appl. No.: **14/470,672**

(22) Filed: **Aug. 27, 2014**

(65) **Prior Publication Data**

US 2015/0063833 A1 Mar. 5, 2015

(30) **Foreign Application Priority Data**

Aug. 30, 2013 (JP) 2013-179997

(51) **Int. Cl.**
G03G 15/00 (2006.01)
G03G 15/08 (2006.01)

(52) **U.S. Cl.**
CPC **G03G 15/556** (2013.01); **G03G 15/0863**
(2013.01)

(58) **Field of Classification Search**
CPC ... G03G 15/55; G03G 15/553; G03G 15/556;
G03G 15/0863; G03G 2215/0695; G03G
2215/0697; G03G 21/1878; G03G 21/1882;

(57) **ABSTRACT**

When a toner cartridge is mounted to an image forming apparatus, if the toner cartridge is new, the image forming apparatus sets a value calculated from cartridge capacity as an initial value of a toner remaining amount. If, when the toner cartridge is mounted to the image forming apparatus, the toner cartridge is not new, the image forming apparatus sets a value calculated from a page count number as the initial value of the toner remaining amount. Furthermore, when the toner cartridge is mounted to the image forming apparatus, the image forming apparatus acquires a sensor value, and if the acquired sensor value is an indefinite value, the image forming apparatus determines an alternative value according to sensor ability as the initial value of the toner remaining amount.

18 Claims, 8 Drawing Sheets

